
**Supplementary Figure 1. Urinary symptoms algorithm.** Adapted with permission from Namey M, Halper J. Elimination dysfunction in multiple sclerosis. *Int J MS Care*. 2012;14(suppl 1):1–26. BTX-A, botulinum toxin A; CIC, clean intermittent catheterization; DESD, detrusor external sphincter dyssynergia; GU, general urology; MS, multiple sclerosis; PFMT, pelvic floor muscle therapy; PVR, postvoid residual; Rx, treatment; UI, urge incontinence.
Urinary Symptoms Algorithm

Urinary Bladder Symptoms in MS

- Treatable causes of incontinence: See "DIAPPERS," Table 3
- Focused physical exam and lab testing

Check PVR <150 mL
- No Rx, observation
- Anticholinergic, B3 agonist, PFMT (optional)
- Improvement: continue Rx; GU referral
- No improvement: GU referral

Urge, frequency, UI, no flow symptoms, PVR <100 mL
- Anticholinergic, B3 agonist, PFMT (optional)
- Improvement: continue Rx; GU referral
- No improvement: GU referral

Urge, frequency, UI, flow complaints, PVR ≥100 mL
- Anticholinergic, B3 agonist, PFMT (optional)
- Anticholinergic + α-blocker + skeletal muscle relaxant, trial with B3 agonist; optional PFMT
- Reduced urge and frequency with elevated PVR: GU referral for CIC ± BTX-A, or suprapubic tube ± BTX-A
- Improved: continue Rx; GU referral
- No improvement: GU referral

PVR >150 mL, urgency, UI, stop-and-go "stuttering" urine flow, incomplete emptying with incontinence; suspect DESD
- GU/urogynecology referral

PVR >150 mL, absent sensory urge or awareness of need to void, no UI: overflow incontinence suspected, abnormal uroflow
- Mixed incontinence
- Trial to void with α-blocker and timed voids; PFMT; check PVR, still elevated: cannot rule out areflexia or underactive bladder = DESD
- Catheterization, indwelling vs. CIC; GU referral
Supplementary Figure 2. Bowel symptoms algorithm. Adapted with permission from Namey M, Halper J. Elimination dysfunction in multiple sclerosis. *Int J MS Care*. 2012;14(suppl 1):1–26. ADL, activities of daily living; GI, gastrointestinal; OT, occupational therapy; PT, physical therapy.
Bowel Symptoms Algorithm

- Constipation with bowel incontinence
  - Mobile
    - Lifestyle modifications: high-fiber diet and supplements; increased fluid intake; exercise; avoid sugar alcohols; timed voids
    - Mobile
      - No response: GI referral
    - Immobile
      - Digital rectal exam
    - Normal
      - Regularly scheduled bowel regimen with suppositories + laxatives; PT referral to optimize mobility
    - Fecal Impaction
      - Disimpaction with regularly scheduled bowel regimen with suppositories + laxatives; GI referral
  - Immobile
    - Antidiarrheals; bulking agents; avoid sugar alcohols and caffeine; consider PT for PFMT and biofeedback
    - Mobile
      - No response: GI referral
    - Immobile
      - Bowel regimen with pre-emptive evacuation; timed elimination; laxative suppositories; PT/CT to optimize mobility and ADL
      - No response: GI referral